

WHAT IS CLAIMED IS:

1. An optical device having at least one slit at a desired location of a polygonal planar optical waveguide formed on a substrate, and carrying out optical path switching
5 of signal light or control of quantity of light of an optical beam by moving an insertion plate up and down in the slit, said optical device comprising:

flat insertion plate holding means for holding said insertion plate, said insertion plate holding means having
10 electric wiring; and

a flat magnet placed in a manner that said magnet faces a surface of said insertion plate holding means opposite to a surface facing said optical waveguide, wherein

Lorentz force caused by interaction between current
15 flowing through said electric wiring and magnetic field generated by said magnet displaces said insertion plate holding means to drive said insertion plate.

2. The optical device as claimed in claim 1, wherein said
20 magnet has a size and shape that enable a projected image of said magnet onto said optical waveguide from a vertical direction to go in a face of said optical waveguide.

3. The optical device as claimed in claim 1, wherein said
25 magnet is placed in a manner that extended directions of linear portions of edges obtained by projecting said magnet onto said optical waveguide from a vertical direction do

not intersect at right angles with a direction of a magnetic field generated by said magnet.